

## Claims

1. Method for regenerating a particulate filter, which is mounted in the exhaust gas channel of an internal combustion engine, filters  
5 particles out of the exhaust gas flowing inside of the exhaust gas channel and is intermittently regenerated during operation, characterized in that the actual air mass flow supplied to the internal combustion engine is measured, the air requirement of the internal combustion engine to be expected at the current operating  
10 point is determined and a regeneration of the particulate filter is initiated based on a difference between the air mass flow and the air requirement.
2. Method according to Claim 1, characterized in that a  
15 regeneration is triggered if the difference of the actual air mass flow from the calculated air requirement exceeds a predetermined threshold value.
3. Method according to one of the above claims, characterized in  
20 that the air requirement is determined taking an empty or cleaned particulate filter as starting point.
4. Method for regenerating a particulate filter, which is mounted in the exhaust gas channel of an internal combustion engine, filters  
25 particles out of the exhaust gas flowing inside of the exhaust gas channel and is intermittently regenerated during operation, characterized in that the actual air mass flow supplied to the internal combustion engine is measured, a model for determining the air requirement to be expected at the current operating point is  
30 adapted to the actual air mass flow and a regeneration of the particulate filter is initiated if the model lies outside the predetermined parameter ranges after the adaptation.
5. Method according to one of the above claims, characterized in  
35 that the model is adapted to the actual air mass flow, whereby at

least one adjustment value is suitably set and a regeneration is triggered if the adjustment value is outside the predetermined ranges.

5    6. Method according to one of the above claims, characterized in that in the determination of the air requirement, other variables influencing the air requirement than the accumulation of particles in the particulate filter are taken into consideration, in particular, the ambient pressure and component tolerances.

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7. Method according to one of the above claims, characterized in that the determination of the air requirement and the decision as to whether a regeneration is triggered only occur at discrete operating points of the internal combustion engine.

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8. Method according to one of the above claims, characterized in that an air requirement is calculated for the control of the internal combustion engine, whereby a partly loaded filter is taken as the starting point.

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9. Method according to one of the above claims, characterized in that the actual air mass flow supplied to the internal combustion engine is determined by an air mass measuring device mounted in an intake tract of the internal combustion engine, or by a pressure  
25    sensor mounted in the intake tract of the internal combustion engine.